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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,867	09/15/2003	Noel Wayne Anderson	16347-US	2142

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EXAMINER

RATCLIFFE, LUKE D

ART UNIT	PAPER NUMBER
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3662

DATE MAILED: 08/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,867

Applicant(s)

ANDERSON ET AL.

Examiner

Luke D. Ratcliffe

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 11-20 and 22-26 is/are rejected.
- 7) ☒ Claim(s) 8, 10 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 3, 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Hasegawa (6040909).

Referring to claim 1 Hasegawa shows an optical source (figure 2A Ref. 101), a focusing optical member (figure 2A Ref. 2), a micro mirror array (figure 2A fig 3 and figure 2B-A through 2B-D), a processor (column 5 lines 10-30), and a transmission optical member (figure 2A Ref. 32). It would be inherent to use technology in a surface detector that detects distance to the surface in a range finder because a range finder detects the distance of an object using surface detection technology.

Referring to claim 2 Hasegawa shows a micro-mirror array that comprises a microelectromechanical system (column 5 lines 10-30, and figure 2B-A through 2B-D).

Referring to claim 3 Hasegawa shows an array of deformable reflective members and a controller for controlling them (column 4 lines 10-30 and column 5 lines 10- 30).

Referring to claim 5 Hasegawa shows a beam size that is determined by the reflective members of the micro-mirror array (figure 2B-A through 2B-D).

Referring to claim 7 Hasegawa shows an optical source that comprises a laser (figure 2A Ref. 101).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 6, 11, 16, 17, 22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view of Mitsumoto (6611225).

Referring to claim 4 it would have been obvious to include a device such as a beam adjuster to reduce the response time of the micro-mirror array when using the method of different radiation patterns as described in Mitsumoto.

Referring to claim 6 Mitsumoto shows a radiation patter that comprises a first beam with a lower resolution and a second beam with a higher resolution (figure 1). It would have been obvious to modify Hasegawa to include the radiation patter of Mitsumoto in an optical system because this radiation pattern is an effective and conservative method for tracking an object because of the limited high resolution signals used.

Referring to claim 11 Mitsumoto shows a radiation pattern that is directed to a global region of interest and then a second scan is directed to a local region of interest (column 6 lines 25-60). It would have been obvious to modify Hasegawa to include the radiation patter of Mitsumoto in an optical system because this radiation pattern is an effective and conservative method for tracking an object because of the limited high resolution signals used.

Referring to claims 16 and 17 Hasegawa shows an optical source (figure 2A Ref. 101), a first transmitting lens (figure 2A Ref. 23), a micro-mirror array (figure 2A Ref. 3), a second transmitting lens (figure 2A Ref. 4), a processor arranged to control the micro-mirror array (column 5 lines 10-30). It would be obvious to include a detector to determine the receipt of the reflected electromagnetic radiation, a timer for determining an elapsed time of the signal and a converter to convert the time into a distance if a system determines the distance to an object in an optical distance measuring system. Mitsumoto shows a system that has a resolution selected between a lower resolution scan over a greater area or a higher resolution scan over a lesser area of interest (column 6 lines 25-60). It would have been obvious to modify Hasegawa to include the radiation pattern of Mitsumoto in an optical system because this radiation pattern is an effective and conservative method for tracking an object because of the limited high resolution signals used.

Referring to claim 22 Mitsumoto shows a method for scanning with a lower resolution and then scanning with a higher resolution with a second beam (column 6 lines 25-60). It would be obvious to further scan the global region with a higher resolution because doing so would ensure the object was not missed by the lower resolution scan. It would have been obvious to modify Hasegawa to include the radiation pattern of Mitsumoto in an optical system because this radiation pattern is an effective method for tracking an object.

Referring to claim 25 Mitsumoto shows a method for scanning with a lower resolution and then scanning with a higher resolution with a second beam (column 6

Art Unit: 3662

lines 25-60). It would have been obvious to modify Hasegawa to include the radiation pattern of Mitsumoto in an optical system because this radiation pattern is an effective and conservative method for tracking an object because of the limited high resolution signals used.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) as applied in claim 1 above, further in view of Malone (3942890).

Malone shows a frequency selective filter intercepting a path of a reflection of a controlled radiation pattern (figure 1). It would have been obvious to modify Hasegawa to include the frequency selective filters in Malone because this makes it possible to include color detection of the object.

Claims 12 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view Mitsumoto (6611225) as applied in claim 11 and 17 above, and in further view of Livingston (5780839).

Referring to claims 12 and 23 Livingston shows a representation of a break or interruption in a crop edge of a field in a tracking system (column 6 lines 15-50). It would have been obvious to further modify Hasegawa include the edge detection of Livingston to a laser range finder because tracking an edge will help a range finder track an object.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) as applied in claim 1 above, and further in view of Crampton (6611617).

Crampton uses a color camera to identify regions of like color (column 9 lines 5 – 15). It would have been obvious to modify Hasegawa to use the color camera of Crampton to identify surfaces of an object at a given distances as being the surfaces of the same object.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) as applied in claim 1 above, and further in view of Lieber (5220164).

Lieber shows a lens for collecting reflected data (figure 1 Ref. 23), a detector (column 1 lines 44-64), and a timer (columns 9 and 10). It would have been obvious to modify Hasegawa with the components discussed in Lieber because they are used to determine distance using a time of flight method of light and this is a common method to measure distance using optical signals.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view of Lieber (5220164) as applied above in claim 14 and further in view of Norita (6674534).

Norita shows a filter that is interposed between the lens and the sensor (figure 9 Ref. 62 and 12). It would have been obvious to modify Hasegawa with the filter that is interposed between the lens and the sensor because the filter will reject one frequency component of the object to determine if the object is present or if it is noise at a particular frequency.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view Mitsumoto (6611225) as applied in claim 17 above, and in further view of Kiyoi (6509973).

Kiyoi shows a method for filtering an emitted electromagnetic radiation (column 5 lines 25-45). It would have been obvious to further modify Hasegawa to include the method for filtering the emitted signal because the filtering will focus the signal on the micro-mirror array.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view Mitsumoto (6611225) as applied in claim 17 above, and in further view of Lai (US 2002/0035097).

Lai shows a method for filtering the received reflected signals (column 4 and 5). It would have been obvious to further modify Hasegawa to include the filtering of the received signal as discussed in Lai because it controls the intensity of the range of incident electromagnetic radiation upon the detector.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view Mitsumoto (6611225) as applied in claim 17 above, and in further view of Malone (3942890).

Malone shows a frequency selective filter intercepting a path of a reflection of a controlled radiation patter (figure 1). It would have been obvious to modify Hasegawa to include the frequency selective filters in Malone because this makes it possible to include color detection of the object.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view Mitsumoto (6611225) as applied in claim 17 above, and in further view of Crampton (6611617).

Crampton uses a color camera to identify regions of like color (column 9 lines 5 – 15). It would have been obvious to modify Hasegawa to use the color camera of Crampton to identify surfaces of an object at a given distances as being the surfaces of the same object.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (6040909) in view Mitsumoto (6611225) as applied in claim 17 above, and in further view of Kiyoi (2002/0036779).

Kiyoi shows a method where red, green, and blue are all processed by image processing circuits (columns 9 and 10). It would have been obvious to further modify Hasegawa to include the color processing method as discussed in Kiyoi because this will help identify the color of the object.

Allowable Subject Matter

Claims 8, 10, and 21 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke D. Ratcliffe whose telephone number is 571-272-3110. The examiner can normally be reached on 8:00-4:30 M-F.


Art Unit: 3662

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LDR

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